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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Bernard ASPAR et al.

Patent No.: 6,913,971 B2

Patent Date: July 5, 2005

For: LAYER TRANSFER METHODS

Confirmation No.: 1292

Application No.: 10/616,586

Filing Date: July 9, 2003

Attorney Docket No.: 4717-5900

REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 C.F.R. § 1.322

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Patentees hereby respectfully request the issuance of a Certificate of Correction in connection with the above-identified patent. The corrections are listed on the attached Form PTO-1050, submitted in duplicate. The correction requested is as follows:

At column 8, line 41 (claim 16, line 2), before "the recess in the source substrate prior to implanting" delete "fanning" and insert -- forming --. Support for this correction appears in application claim 16.

In addition to the above, patentees have also noted a typographical error in a cited U.S. patent document, namely, "6,406,336" to Stansbury should be "6,406,636" to Vaganov. The correct patent number is shown on the International Search Report where the Vaganov patent is listed as a category "A" reference.

The requested correction is for an error that appears to have been made by the Office. Therefore, no fee is believed to be due for this request. Should any fees be required, however, please charge such fees to Winston & Strawn LLP Deposit Account No. 50-1814. Please issue a Certificate of Correction in due course.

Respectfully submitted,

7-12-05
Date

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.: 6,913,971 B2
DATED: July 5, 2005
INVENTORS: Aspar et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 8, line 41, before "the recess in the source substrate prior to implanting" delete "fanning" and insert -- forming --.

substrates 4 and 6, respectively. Such a configuration further increases the available capacity to collect any excess amount of the material 6.

FIG. 12 shows a second embodiment that includes recesses for receiving an excess amount of material 6. In FIG. 12, the source substrate 4 and the support substrate 5 are shown bonded together. In this embodiment, the recess formed in one substrate communicates with the rear face thereof via a channel. In order to simplify the diagrams, a first variant of the channel has been arbitrarily selected to be shown on the support substrate 5, and a second variant is shown on the source substrate 4. It should be understood that the channels could be reversed, and that other configurations are contemplated.

In the first variant, a recess 56 communicates with the rear face 55 of substrate 5 via a channel 57. The channel 57 can have any shape and connects the recess of the front face 54 to the rear face 55. In the second variant, the recess is the channel 47 that passes through the source substrate 4 from one side to the other. As explained above, it is also possible to have both recesses and channels in the source substrate 4 and in the support substrate 5. The channels 47 and 57 are formed using the same techniques used for forming the recesses 46 and 56, and preferably use wet or dry etching techniques, which result in deep etched channels. The channels 47 or 57 allows the excess of material 6 to be evacuated from the rear faces 45 and 55 of the substrates. Since the channels are open to the outside, such a configuration allows greater variation in the volume of applied material 6.

The present methods are suitable for substrates 4 and 5 of a variety of materials, in particular semiconductors that can be used in the fields of optics, electronics, and optoelectronics. Examples of suitable substrate materials include, but are not limited to, silicon, germanium, silicon carbide (SiC), or III–V materials, which are compounds having at least one element found in column IIIa of the periodic table and the other element found in column Va, for example gallium arsenide (GaAs), or indium phosphide (InP).

What is claimed is:

1. A method for fabricating a composite substrate which method comprises:

forming a recess in a front face of at least one of a support substrate or a source substrate that extends to a zone of weakness, the recess having a configuration that, in conjunction with the zone of weakness, assists in defining a transfer layer in the source substrate;

depositing a bonding material onto at least one of the front face of the source substrate or the front face of the support substrate;

bonding the front faces of the source and support substrates together in a manner to provide at least some of the bonding material in the recess; and mechanically or thermally detaching the transfer layer from the source substrate along the zone of weakness to form a composite substrate comprising the transfer layer, bonding material and the support substrate.

2. The method of claim 1 wherein transfer layer has a periphery and the configuration of the recess corresponds to the periphery of the transfer layer.

3. The method of claim 2 wherein the transfer layer periphery and recess are circular.

4. The method of claim 2 wherein the recess comprises a groove or channel.

5. The method of claim 2 wherein the recess is formed in the front face of the support substrate, the bonding material is deposited onto the front face of the source substrate as a uniform layer, and the bonding material enters the recess when the source and support substrates are bonded together.

6. The method of claim 2 wherein the recess is formed in the front face of the source substrate, the recess has a depth which extends to near the zone of weakness, and the bonding material is applied onto the front face of the source substrate.

7. The method of claim 6 wherein the recess is configured to receive bonding material so that the bonding material does not extend past the zone of weakness on outer portions of the source substrate.

8. The method of claim 6 wherein the bonding material in the recess protects the peripheral edge of the transfer layer.

9. The method of claim 1 wherein the recess is formed through the entire thickness of the source substrate or the support substrate.

10. The method of claim 1 wherein recesses are formed through the entire thickness of both the source substrate and the support substrate.

11. The method of claim 1 wherein the bonding material is releasable.

12. The method of claim 1 wherein the recess is formed by at least one of wet etching or dry etching.

13. The method of claim 1 wherein the recess is formed by mechanical machining.

14. The method of claim 13 wherein the mechanical machining is conducted using at least one of a saw or a laser beam.

15. The method of claim 1 which further comprises implanting atomic species into the source substrate to form the zone of weakness.

16. The ~~method of~~ claim 15 which further comprises forming fanning the recess in the source substrate prior to implanting the atomic species.

17. The method of claim 1 which further comprises providing a porous layer in the source substrate to form the zone of weakness.

18. The method of claim 1 which further comprises providing a releasable bonding interface to form the zone of weakness.

19. The method of claim 1 wherein the transfer layer is detached by applying a mechanical stress to the zone of weakness.

20. The method of claim 19 wherein the mechanical stress includes at least one of a tension, a bending stress or a shear stress.

21. The method of claim 1 wherein the transfer layer comprises a semiconductor material.

22. The method of claim 1 wherein the bonding material comprises an adhesive or adhesive material.

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